

In the Specification:

Please make the following changes in the latest version of the following section of the specification:

Page 3 to 6, in the section labeled "Summary of the Invention", please make the following changes in the latest version of this section presented on pages 7 to 10 of the amendment dated March 29, 2004:

Summary of the Invention

It is an object of the present invention to provide an improved method for repeat transmission of messages in a centrally controlled communication network.

According to the invention the method for repeat transmission of messages in a centrally controlled communication network, especially a radio network, including a central station, in which several terminals are simultaneously operable in a participating group, comprises the following steps:

- a) transmitting of each of the messages from the central station ~~only once~~ for reception by the several terminals of the participating group and assigning a respective identifier to the corresponding messages to detect whether or not a transmitted message was incorrect or lost;
- b) as soon as a terminal has established an error in or loss of a transmitted message, it issues a repeat request for a repeat transmission of this

message over a communication link, especially a point-to-point link, between the central station and the terminal detecting the error or the loss; and

c) the central station performs ~~only a predetermined number of repeat transmissions of the erroneous or lost message in response to the repeat request only within a predetermined time interval; until a maximum number of the repeat transmissions is reached or until a positive acknowledgement of the receipt of the previously lost or erroneous message is received by the central station from the terminal making the repeat request, and does not perform any further repeat transmissions after said maximum number is reached~~

d) halting the requested repeat transmissions within the predetermined time interval when a predetermined maximum number of repeat transmissions has been reached; and

e) halting the requested repeat transmissions within the predetermined time interval when a positive acknowledgement of receipt of the message is received by the central station during the predetermined time interval from the terminal issuing the repeat request;

whereby clogging of the communication network by repeat transmissions is effectively prevented.

During broadcast and multi-cast links, i.e. operating modes, in which terminals are simultaneously operated by the central station, it is possible to transmit repeat requests for repetition of message transmissions with the method according to the invention. Also a message, which should be received by the several terminals of a participating group, is only transmitted once for reception

by all participating terminals but the single transmission is received and processed by all participating terminals. The multi-cast operation (groups of several selected terminals of a radio cell) or also broadcast operation (all terminals found in the cell) happens in the current communication systems only in one direction, namely from the central station to the terminals (down-link). The method according to the invention uses another communication link, preferably an existing point-to-point link, between a terminal of the multi-cast group and/or broadcast participants and the central station in order to be able to perform a simple protocol for repeat requests, when a repetition of an error-containing or lost message is required within a predetermined time interval. Because of that the probability for transmission of an error-containing data packet is clearly reduced, without expensive error protecting measures being required. Since a point-to-point transmission for exchange of control information between the terminals and the central station, especially in HIPERLAN Type 2 communication systems, is provided anyway, no additional expenses for transmission of repeat requests are produced by the method according to the invention.

Repeat requests are of great importance, especially in radio networks, since error-free transmission of data with conventional methods (FEC) cannot be guaranteed because of physically limiting high error rates. In current conventional applications, such as speech transmission or image transmission, see GSM, DVB-T, this is not important, since they tolerate errors to a certain extent. In speech transmission a transmission error generally is noticeable only as a brief interfering noise. However when electronic data, such a software programs or

documents, must be transmitted over a radio network, scarcely any errors are tolerated, since they would in most cases make the entire data unreadable.

In preferred embodiments of the method the lengths of the message and predetermined time interval determine the maximum number of repeat transmissions. On the other hand, the terminal detecting the lost or erroneous message can limit the predetermined number of repeat transmissions.

Preferred embodiments of the method include, in addition to the foregoing steps, issuing a positive acknowledgement of each correctly received message or issuing a negative acknowledgment of the lost or erroneous message in order to inform the central station whether or not message repetition is necessary.

In especially preferred embodiments of the method the respective identifiers include corresponding sequence numbers assigned to the transmitted messages, the repeat request includes the one of the sequence numbers corresponding to the message detected as lost or erroneous and the central station repeats transmission of that message with the associated sequence number. Then other messages received by the one terminal detecting the loss or error can be erased or not used when these other messages contain the sequence number of a previously correctly received message. It is only necessary to acknowledge at least one sequence number to inform the central station whether or not message repetition is necessary.